

**TRUE CIRCLE BRAKES**  
*and*  
**BRAKING SAFETY**



# TRUE CIRCLE BRAKES

## *and Braking Safety*

### *Foreword*

Smooth, powerful, quiet brakes are a source of satisfaction not only to the car owner, the automobile dealer and service station, but to car manufacturers as well.

Everyone is interested in more efficient braking—for safety as well as physical and mental comfort. And so we have prepared this little booklet, to show you in pictures, some of the causes of brake troubles. It will show you why brakes squeak, slip and grab.

And it presents a remedy for these troubles that well justifies a careful reading of the entire booklet.



Copyrighted  
1929 L. V. C.

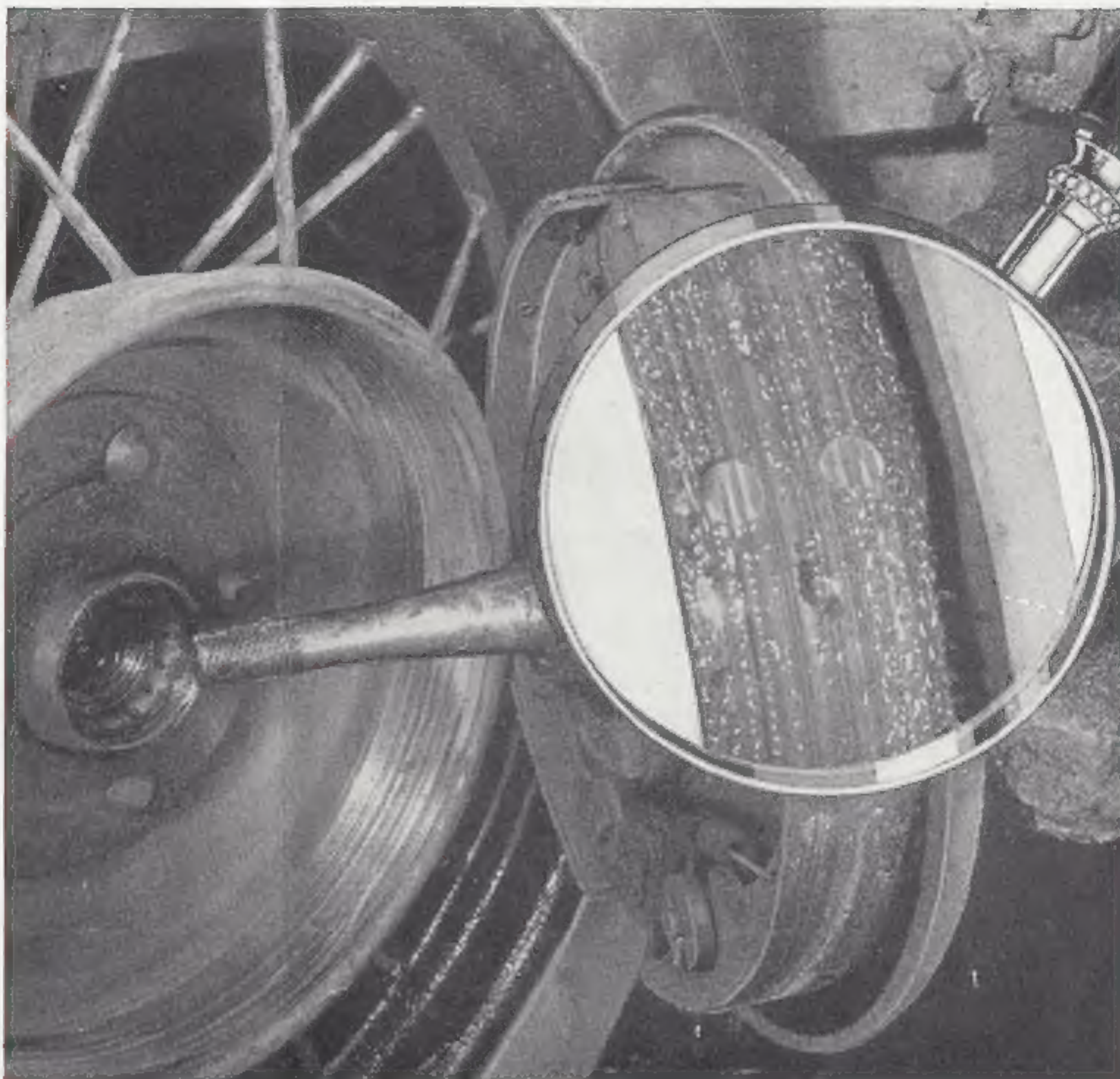
Printed in  
U. S. A

Price  
50 Cents

LINE-O-BRAKE DIVISION  
LIQUID VENEER CORPORATION

BUFFALO, N. Y.





### Protruding Rivets and Exposed Wires Cause Brakes to Squeak and Grunt

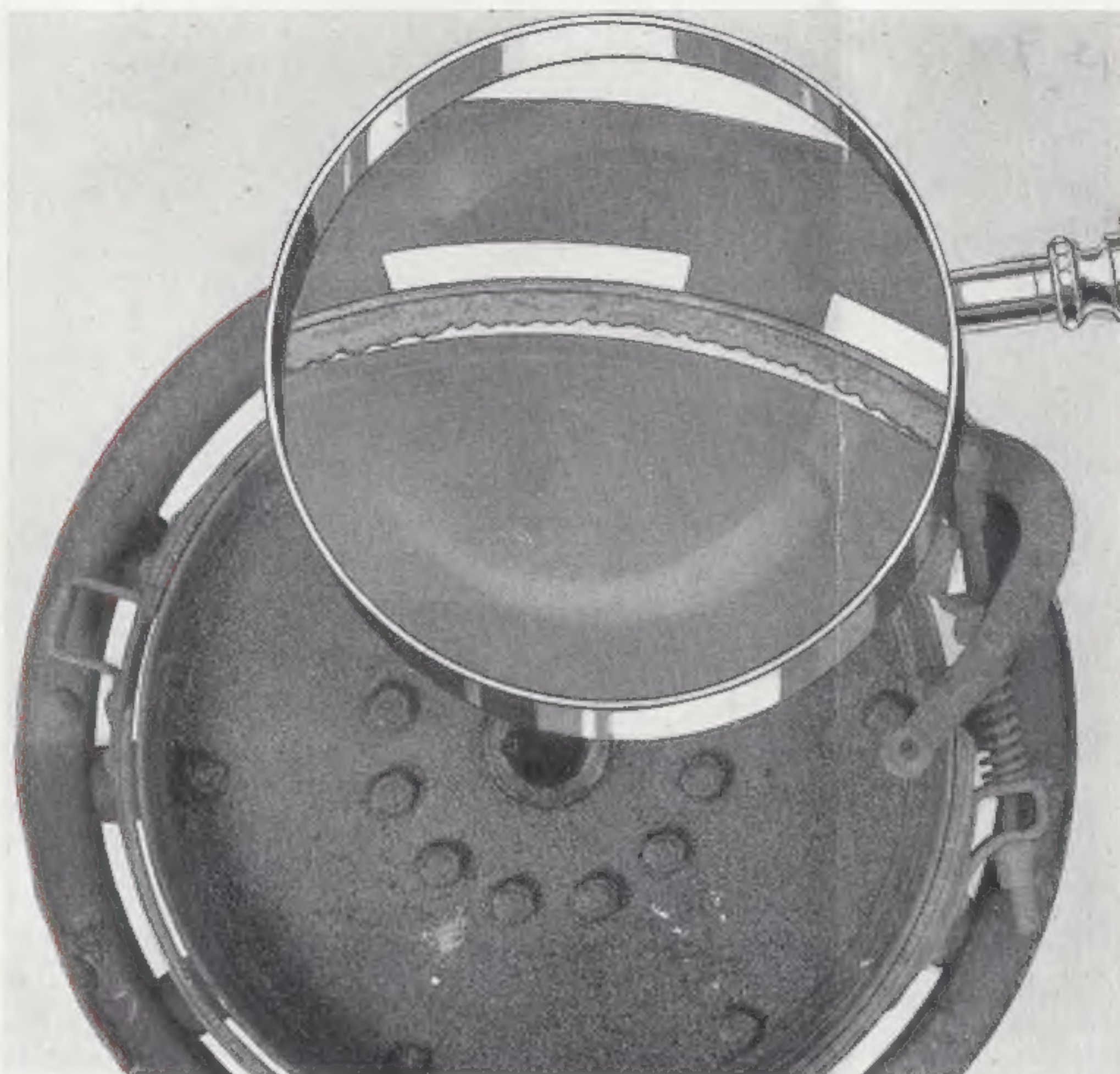
Probably the most common and annoying of all brake troubles is squeaking.

One cause of squeaking is excessive wear, which grinds down the brake lining and leaves exposed the rivet heads as well as the wires which are woven into the lining itself.

These metal parts, when forced against a rapidly revolving brake drum, form a metal to metal contact, *under pressure*. Chips of steel from the drum, and particles of grit or gravel from the road accentuate this, and when the brakes are applied a vibration in the drum is set up—and brakes *squeak*.

*After only 10,000 miles  
exposed rivets had  
ruined the brake drum  
pictured above.*





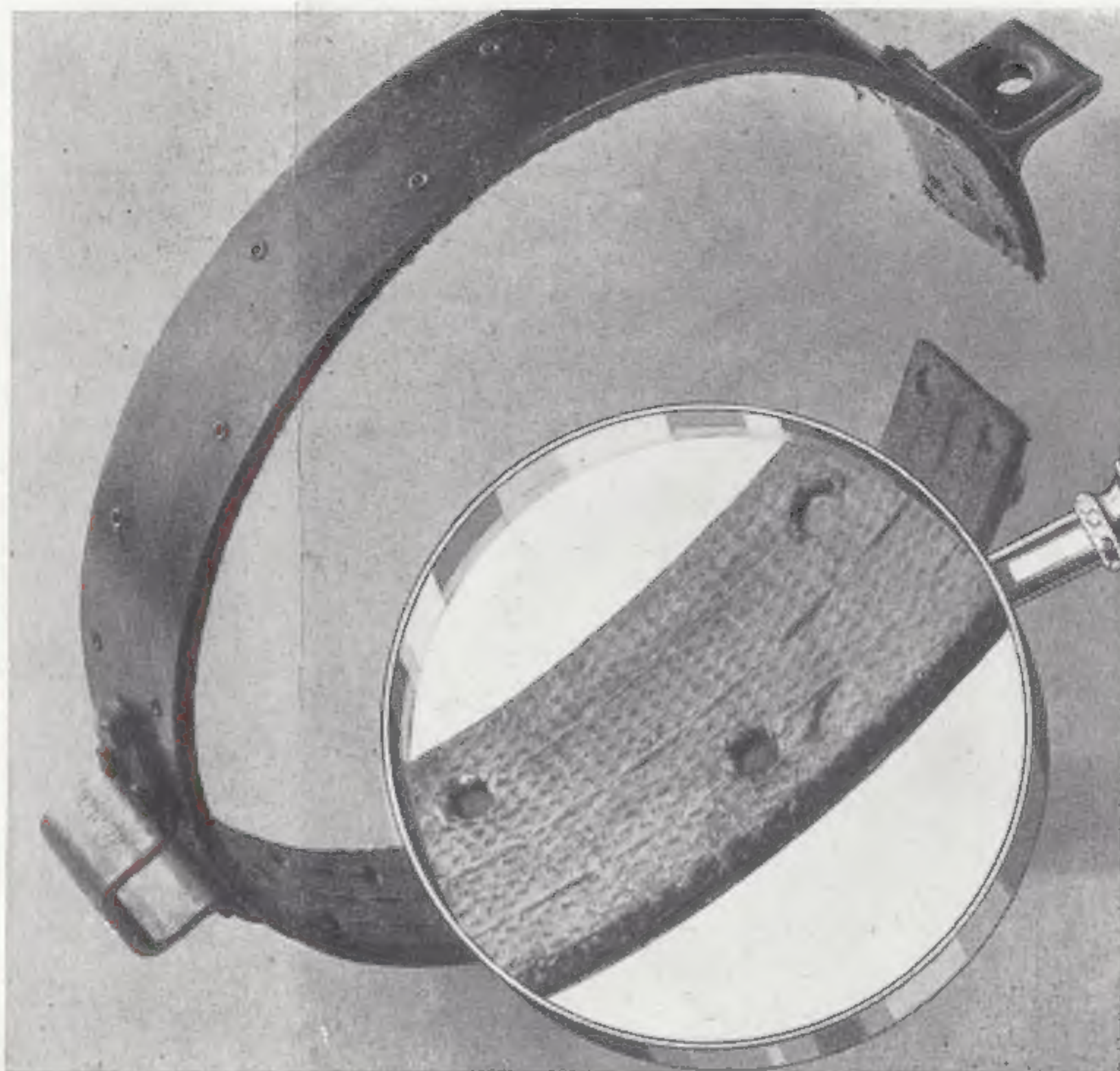
### An Out-of-Round Condition is Also Responsible for Squeaky Brakes

Another very common cause of squeaking brakes is an out-of-round condition, which localizes the wear on certain high spots on the brake lining, thus setting up a series of distressing vibrations.

Any mechanic knows that with metal bands and drums it is inevitable that an out-of-round condition will be present when the lining is stretched over the band and riveted and peened into place. This so distorts the band that only the higher spots on the lining actually make contact with the drum when brakes are applied.

*Only with 100 per cent contact are your brakes working at their greatest efficiency.*





## Rivet Depressions Form Closed Water Pockets and Cause Slippage

The brake lining shown above has just been riveted to the band. It has never seen service. In this case there is a deep depression at every rivet head.

In wet weather, or after a car has been washed, water accumulates in these depressions and is sealed in, when the brakes are applied, by the contact made around it by the pressure of the lining against the drum.

These closed "water spots" act as lubricants, for water is a perfect lubricant when retained between two surfaces. The result is slipping, unsafe brakes.

*Water pockets form on both new and old cars, unless the rivet depressions are properly filled.*





### Exposed Fabric is Another Cause of Brake Slippage

In many cases, particularly where certain types of linings are used, exposed, frayed ends of fabric may be found. In dry weather all is well. But on wet, rainy days these fabric ends absorb water and become slimy, swollen pieces that hold a cushion of moisture between the lining and the drum.

This moisture acts as a lubricant, and brakes will not hold, regardless of pedal pressure.

This condition is most often found in brake linings that contain a high percentage of cotton, and wet weather slippage develops after a few hundred miles of operation

*A waterproofed lining  
is the only lining un-  
affected by wet weather*





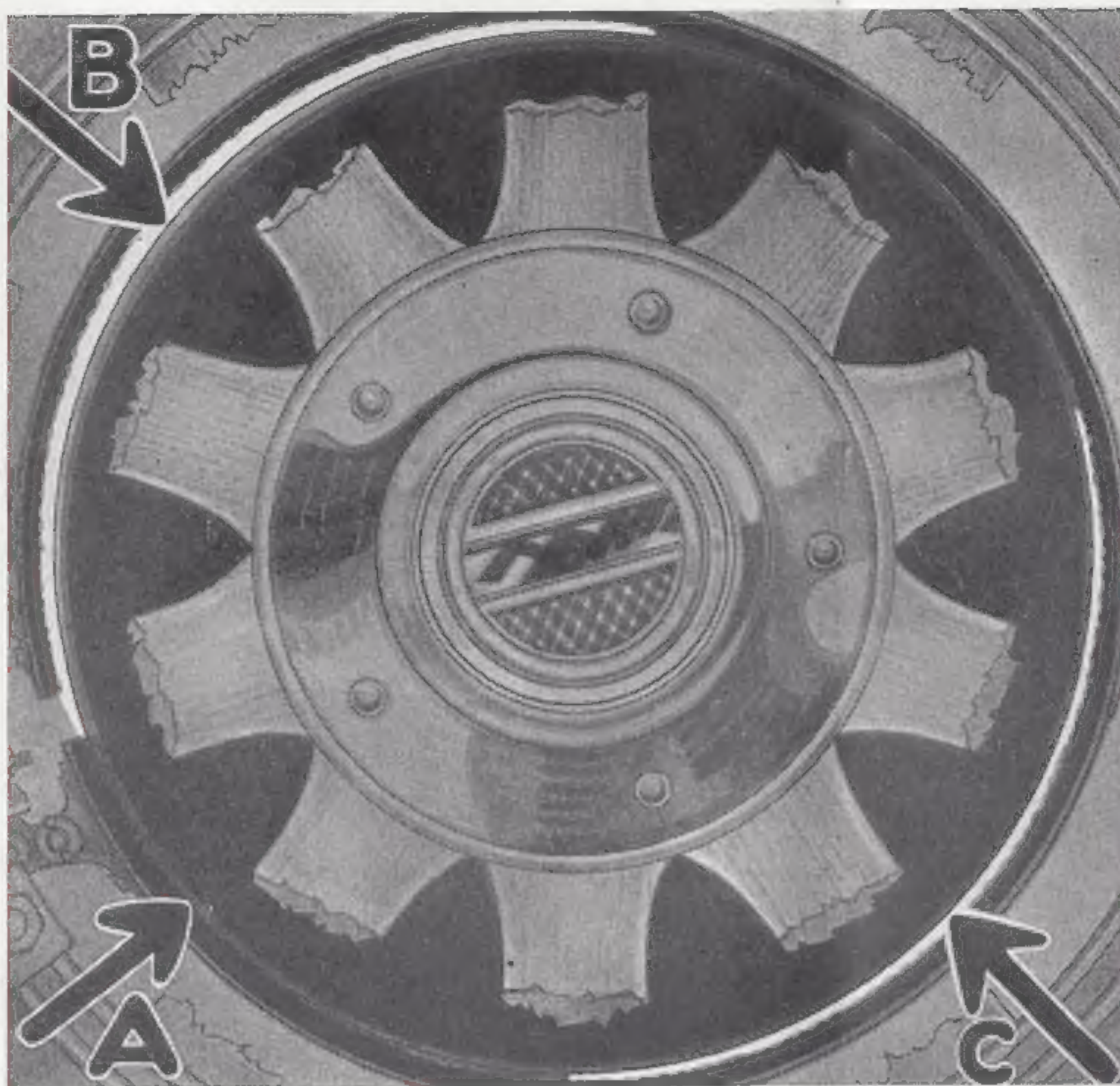
## Glazed, Charred Surfaces are Reflected in Violent Grabbing

When your brakes become overheated, the surface of the lining becomes charred, or carbonized, leaving a hard, glazed coating, which acts as a shell.

In wet weather, and after car washing, water comes in contact with the inner fabric, seeping in through rivet depressions and the exposed fabric at the sides of the lining. This water causes the lining to swell and increase in thickness. The result is a too rapid and violent contact between the hard, glazed shell and the brake drum, which makes the brakes grab and chatter.

*Smooth, velvety brake action is impossible with the condition illustrated above.*





### Chattering is Caused by Imperfect Contact of the Brake Band

When pressure is applied, brake bands tend to wrap themselves around the drum, either clockwise or counter clockwise, depending upon the forward or backward motion of the car. Brakes are so designed that the lining should be concentric with the drum *at the moment of contact*. In the illustration above, however, the lining is out-of-round, or improperly adjusted, and point A contacts first, with no contact at B and C.

This causes chattering, which will be eliminated when every portion of the lining forms contact with the drum at the same time.

*Perfect contact and proper mechanical adjustment stop chattering immediately.*





## Hard Pedal Action Comes from Loss of Actual Braking Area

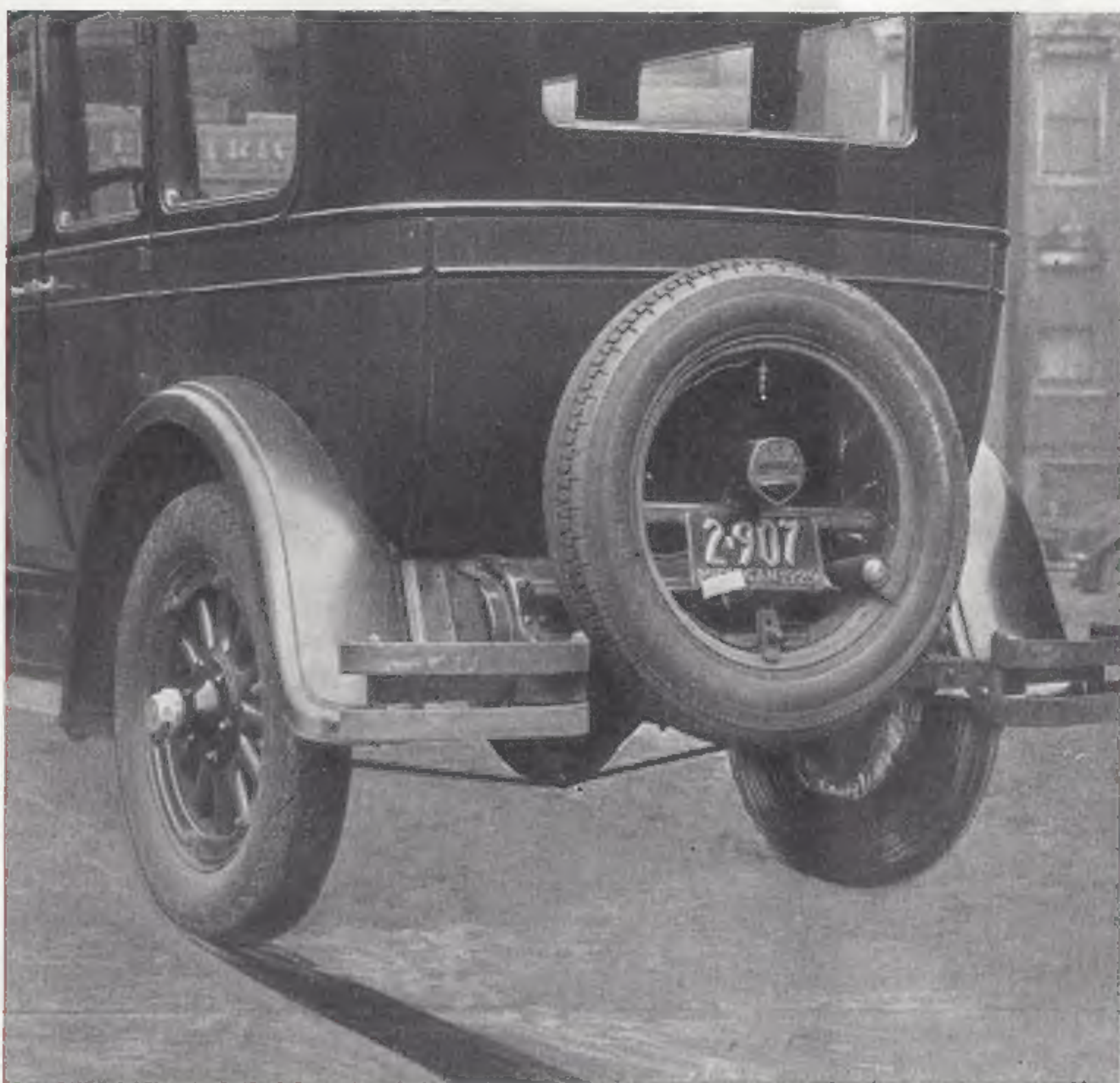
The area of your brake lining may be 100 square inches, but due to rivet depressions, low spots and out-of-round (see A, B and C above), you may have only 60 inches that have to do all the work.

As a result, it requires much greater pressure on the foot pedal to accomplish any necessary braking action. Even new cars show a loss of actual braking area over the theoretical, and any gain in real braking contact is a gain in braking efficiency.

Hard pedal action is merely a sign of unsafe and faulty brakes.

*Easy pedal action comes  
when you brake on the  
"Perfect Circle."*





## Skidding, of Course, Results from Faulty Mechanical Adjustment

Perfect mechanical adjustment, however, is almost impossible unless perfect brake contact is there at the start. Brakes that are properly equalized in dry weather may be entirely out of adjustment in wet weather, if one brake swells more than the others due to atmospheric conditions.

To be sure of permanent adjustments, be certain that you have 100 per cent braking area on all wheels, that your brake linings are waterproofed — unaffected by weather conditions. Then the equalization of your brakes means something that will last.

*If your car skids or swerves when you apply your brakes you need Line-O-Brake.*





## This is the Result of an Out-of-Round Condition

If you have read the preceding pages you have discovered the effects of an out-of-round condition, which with the absorption of water cause practically *all* brake troubles.

Our engineers have studied these conditions for years, and have searched for something that would accomplish two things:

1. Produce a perfect circle of efficient brake lining contact.
2. Waterproof the lining and make it function regardless of weather.

*Line-O-Brake corrects the conditions that make brakes, slip, grab and chatter.*

They have solved the problem, through the discovery and development of Line-O-Brake, the Plastic Brake Lining.





### The Same Lining After an Application of Line-O-Brake

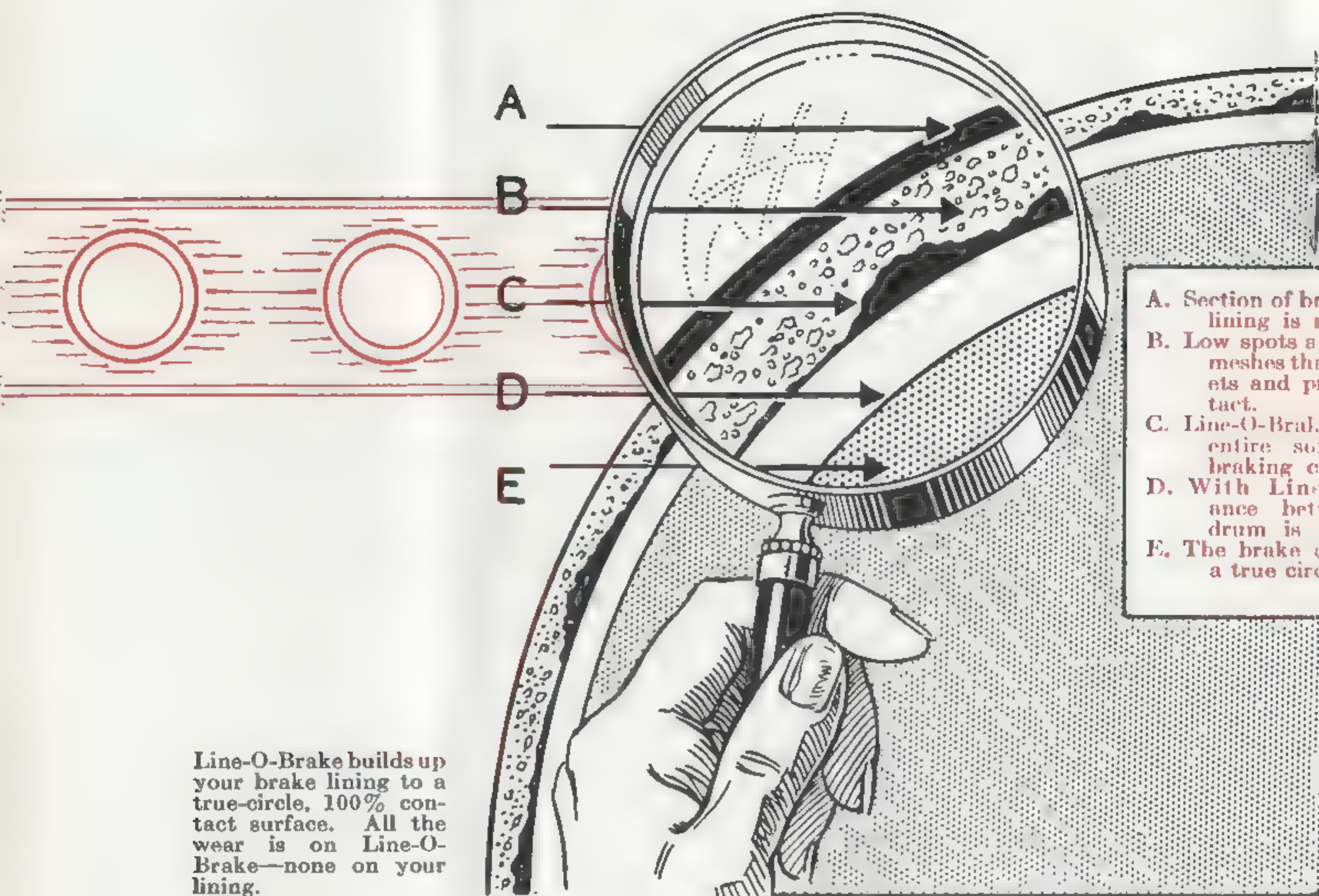
Line-O-Brake, a plastic brake lining, is composed of asbestos and other heat resisting materials used in the manufacture of the best linings.

It is applied to the lining in the plastic state, filling in the depressions, rivet holes and low areas, covering rivet heads and exposed wires, sealing and completely waterproofing the fabric of the lining.

It is then molded by the spinning of the brake drum to a true conformity with the drum itself—a perfect circle of braking efficiency.

*Friction heat vulcanizes Line-O-Brake until it becomes an integral part of the lining itself.*





- A. Section of brake lining is shown.
- B. Low spots and meshes that prevent contact.
- C. Line-O-Brake material is applied to entire surface of braking drum.
- D. With Line-O-Brake, the distance between the drum and the shoe is uniform.
- E. The brake shoe now makes a true circle of contact.

Line-O-Brake builds up your brake lining to a true-circle, 100% contact surface. All the wear is on Line-O-Brake—none on your lining.

## The Perfect Circle of

In foregoing pages we have shown the most common causes of brake troubles.

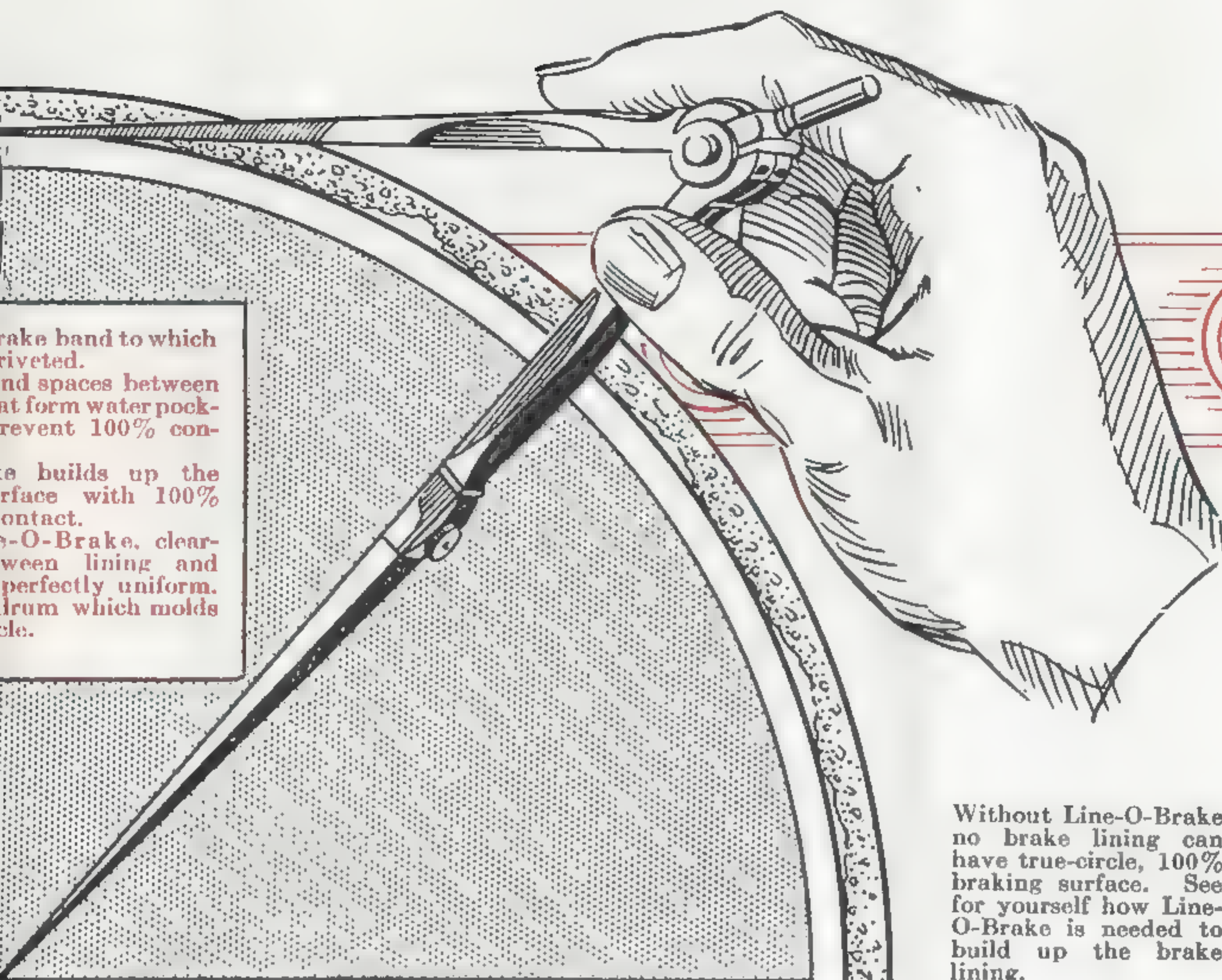
In subsequent pages we shall show you how these troubles may quickly be eliminated through the use of Line-O-Brake.

Do not confuse this product with "brake juices" or powders. Line-O-Brake is a plastic brake lining. There is body to it which builds up the low spots and makes a new molded lining. After it has been applied, you brake on Line-O-Brake, not on the fabric.

A car Line-O-Braked at regular intervals will

*Line-O-Brake produces a perfect circle of brake contact.*





brake band to which  
riveted.  
and spaces between  
at form water pock-  
prevent 100% con-  
e builds up the  
rface with 100%  
contact.  
y-O-Brake, clear-  
ween lining and  
perfectly uniform.  
drum which molds  
le.

Without Line-O-Brake  
no brake lining can  
have true-circle, 100%  
braking surface. See  
for yourself how Line-  
O-Brake is needed to  
build up the brake  
lining.

## f Braking Efficiency

always maintain perfect braking efficiency. When Line-O-Brake is applied, it conforms accurately to the true circle of the brake drum against which it is molded, regardless of the irregularities and distortions of the old brake lining.

And of almost equal importance is the fact that Line-O-Brake is waterproof and seals every pore in the fabric so completely that wet weather has no effect on your brakes.

You will be interested in the pages that follow describing the application and showing actual installation pictures.

*Line-O-Brake water-  
proofs and seals the  
fabric.*





### Emergency Application of Line-O-Brake From the Handy Tube

Line-O-Brake, formerly sold only in bulk to factories and large service organizations, is now available in handy squirt tubes.

The spout may easily be inserted between the brake lining and drum and a liberal quantity of Line-O-Brake squeezed out and distributed by rotating the wheel. This fills in the rivet depressions and low spots.

While this application is valuable for temporary relief, the best way is to remove the wheels, clean the lining with emery cloth and apply Line-O-Brake over the entire wearing surface with a stiff brush or knife.

*In this picture the wheel  
was removed for photo-  
graphic purposes only.*





### Preferred Application is Made by Using a Stiff Brush

No matter which method of application you use, Line-O-Brake should be allowed to stand until the volatile liquid, in which the "body" is suspended, has evaporated. This will require forty-five minutes or an hour, depending upon the amount applied.

Two applications of a thin coat are better than a single application of a thick coat.

After application has been made the driving of the car molds Line-O-Brake into a perfect circle concentric with the drum and the frictional heat vulcanizes and gives you a new braking surface.

*A tube of Line-O-Brake  
should be in the tool kit  
of every car.*





### Line-O-Brake Immediately After Application

The illustration above shows the appearance of Line-O-Brake after it has been applied to the brake lining, but before the wheel has been replaced.

You can see how it completely covers the old surface, forming a *new* brake lining. To a certain extent, it conforms to the irregularities of the old lining, although all low spots are completely filled.

In the following illustrations you will see exactly what happens as Line-O-Brake is molded and vulcanized by the normal driving of the car.

*Line-O-Brake gives you  
a new lining, without  
removing the old.*





## Line-O-Brake After 50 Miles of Operation on the Car

Molding and vulcanizing are done at the same time in the regular driving of the car, the spinning of the drum and the application of brakes.

In this case, the car has been driven 50 miles, the Line-O-Brake is nearly perfect in contour and has assumed a worn-in texture. It has been forced into the low spots and vulcanized by the heat generated by the application of the brakes. Spots that were a trifle too high, due to too much Line-O-Brake, have been worn down and you are forming a new molded lining.

*Line-O-Brake molds a new lining while you drive your car.*





## Line-O-Brake After 500 Miles Of Operation

This is the type of brake lining that makes driving a pleasure. The perfect face and texture are apparent. The new brake lining is truly concentric with the drum.

This brake cannot squeak, grunt, slip, grab or chatter. It functions with but slight pedal pressure, because it makes contact over its entire surface. Being waterproof, it is unaffected by weather.

One rivet is beginning to show through, but the strands of Line-O-Brake over the rivet head prove that it adheres to the rivet heads, as well as to the fabric.

*There is no better car  
insurance than efficient,  
positive brakes.*





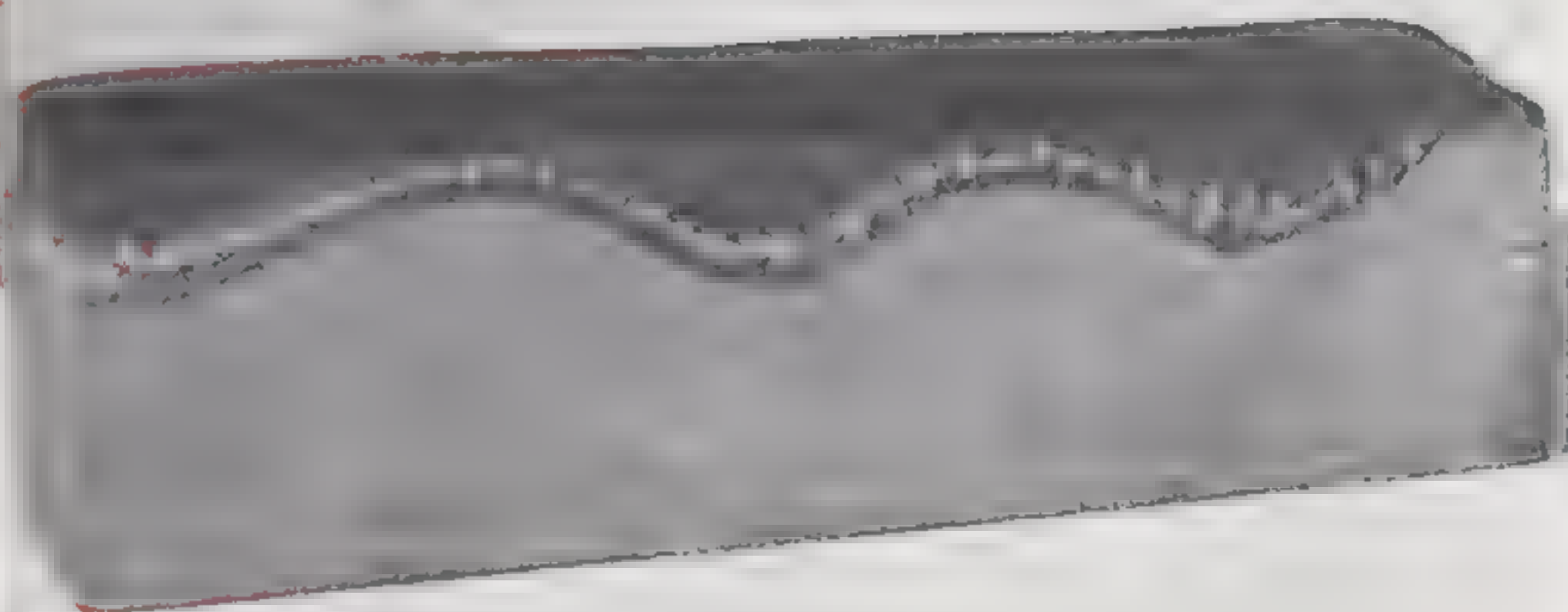
### Line-O-Brake After 3000 Miles Of Operation

Line-O-Brake, of course, like any other material, must wear. After 3000 miles of service, however, you have exceptionally good brakes. Line-O-Brake still fills the low spots between the slightly exposed strands of wire and even now the edges and face of the lining will not absorb water.

It will soon be time to make another application, however, and if you want brakes that are truly efficient, you should arrange to have Line-O-Brake applied every three or four thousand miles, and it is desirable to make the first application when brakes are new.

*Line O-Brake is heat  
resisting and waterproof.*





### Only With Line-O-Brake Can You Duplicate this Test

To demonstrate the fact that Line-O-Brake has a heavy body, and is marketed in plastic form only to permit of molding by the drum, a piece of brake lining was mounted on a block of wood and cut irregularly and Line-O-Brake applied, filling pockets  $\frac{3}{4}$  of an inch deep.

The block of wood, lining and Line-O-Brake were then sawed in two to show the body. Even at this extreme depth, Line-O-Brake was firm and tough and presented a wearing surface of maximum efficiency.

*This demonstrates what  
Line-O-Brake will do  
in rebuilding your own  
brakes.*



You Can Secure  
**LINE-O-BRAKE**  
 from Progressive Dealers and Service  
 Stations Everywhere

**L**INE-O-BRAKE has been developed and improved by the Liquid Veneer Corporation of Buffalo, New York, a five million dollar company, that has, over a period of forty years, earned the confidence of the motoring public.

Line-O-Brake is the result of years of experimentation. It has been tested over long periods of time under every conceivable condition. It is marketed through regular jobbers and automotive dealers and is guaranteed to be satisfactory.

Go to your dealer. Buy a single tube and apply it according to the specific directions enclosed in the carton.

Or better yet, have your service station make an application for you and then check your brakes for mechanical adjustment.

*The price of Line-O-Brake  
 is \$1.00 a tube.*





## Read What Users Say

### **Smoother Operation**

"Line-O-Brake completely eliminated the squeak of the brakes and made them very much smoother in operation. They do not grab and do not lock the wheels, thereby bringing the car to a stop smoothly and saving the tires.

"I am very glad to recommend Line-O-Brake to anyone who has a Chevrolet car and believe it is equally good on any car with brakes that squeak or grab. It has been about six weeks since Line-O-Brake has been applied and the squeak has not returned. I believe that if Line-O-Brake were applied once every two or three months the brake lining would never wear out."

PENN YO PLUMBING SUPPLY  
Co., Inc.

Buffalo, New York  
*George W. Crane, Gen. Mgr.*

### **Great Success**

"I had an application of Line-O-Brake put on my own car with a great deal of success and have since used it on the cars of several of our customers who have complained of squeaky brakes, and this also has worked out very successfully.

"This is the only solution that we have been able to find

so far to eliminate the nuisance of squeaking brakes."

PACKARD MOTORS, INC.  
Salt Lake City, Utah  
*C. N. Carruthers, Sales Mgr.*

### **I Am Recommending It**

"We have tried Line-O-Brake Liquid Lining on our cars and I am recommending that our purchasing agent buy it."

DEPARTMENT OF POLICE  
Buffalo, New York  
*James W. Higgins, Commissioner of Police*

### **Very Effective**

"We find Line-O-Brake very effective."

WELDON CHEVROLET Co.  
Enid, Oklahoma  
*J. R. Weldon*

### **Does All You Claim**

"Glad to report our experience with Line-O-Brake. Our results have been very satisfactory.

"We have been using your compound for over two months and have carefully checked up on the brakes we have treated and find it does all you claim for the building up of the lining and eliminating the squeaks."

TRU-DRUM BRAKE SERVICE Co.  
Los Angeles, California  
*J. D. Slyder*



## About Line-O-Brake

### Better Braking Power

"We have been using Line-O-Brake on our buses for over two months and are well pleased with the results.

"The buses are on the road almost continually, start and stop about a thousand times a day. You can appreciate our welcome for a solution like Line-O-Brake that gives us better braking power and eliminates squeaks."

WEST SIDE TRANSIT COMPANY  
Long Beach, California  
*Fred Rife*

### Users Are Well Pleased

"Your favor of the 12th indicates the right attitude towards distribution and we appreciate your method of handling.

"The Line-O-Brake Campaign has worked out very satisfactorily and the business developed has more than met our expectations.

"From all accounts, the users of this product are very well pleased with the results and we hope to make Line-O-Brake a permanent item in our lines. We wish to thank you for your co-operation."

PITTSBURGH AUTO EQUIPMENT  
COMPANY  
Pittsburgh, Pa.  
*Thomas I. Jenks, Sales Mgr.*

### Thoroughly Satisfied

"We have been using Line-O-Brake to eliminate brake squeaks and have found that we secure very good results from using it.

"I personally have handled the using of this compound on our demonstrators and have been thoroughly satisfied that it will eliminate all squeaks."

LARSON OLDSMOBILE CORPORATION

Brooklyn, New York  
*S. Schachman, Service Mgr.*

### Wonderful Results

"We take this opportunity of letting you know the wonderful results we have received from Line-O-Brake.

"Due to weather conditions in this part of the country we have many, many cases of squeaking brakes and brakes not operating efficiently during the cold and wet weather.

"After experimenting extensively with many different products we have thoroughly convinced ourselves that Line-O-Brake is the best yet, and today we use nothing else for eliminating squeaks and increasing the efficiency of brakes in wet weather."

EASTERN MOTORS LIMITED  
Chrysler Distributors  
Montreal Quebec  
*A. L. Hall, General Manager.*

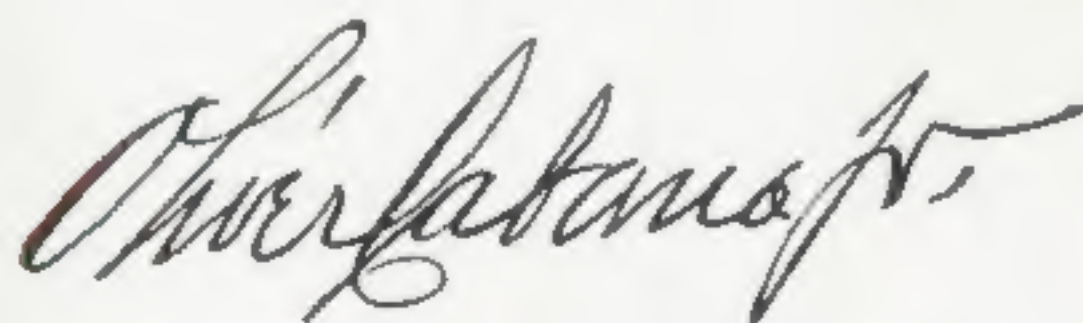


## To Everyone Interested in Better Brakes

"In developing Line-O-Brake and making it available in tube form, we feel we have made a real contribution to the welfare of the motoring public and rendered a distinct service to the country at large.

"For we are selling not merely a product, but greater safety, greater comfort and increased pleasure in car ownership.

"That we are succeeding is evidenced by the enthusiasm by which Line-O-Brake has been received, both by the public and by progressive automotive dealers everywhere."



President,  
Liquid Veneer Corporation



Posted Feb-2023 - Courtesy  
Elma NY Historical Society